CODE REQUIREMENTS FOR

RESIDENTIAL

SWIMMING POOLS

2018
CONNECTICUT STATE BUILDING CODE

2015 INTERNATIONAL RESIDENTIAL CODE
2015 INTERNATIONAL ENERGY CONSERVATION CODE

The City of Meriden Building Department is offering this informational handout as a representative of typical issues or questions that may arise on a typical job. The City assumes no responsibility for any errors or omissions, and the installer is required to follow all applicable codes and regulations of the State of Connecticut and the City of Meriden.

GUIDE FOR
SWIMMING POOLS

PERMIT APPICATION REQUIREMENTS

ABOVE-GROUND:

- Copy of Plot Plan (showing location of pool)
- Building Permit application (both sides with permit fee)
- Electrical Permit application (both sides with permit fee)
- Permission to sign (if required)
- Proof of Home Improvement Contractor's License (if applicable)
- Proof of Electrical Contractor's License (if applicable)
- Certificate of Workman's Compensation insurance (if applicable)

IN-GROUND:

- Copy of Plot Plan (showing location of pool)
- Building Permit application (both sides with permit fee)
- Electrical Permit application (both sides with permit fee)
- Permission to sign (if required)
- Proof of Home Improvement Contractor's License (if applicable)
- Proof of Electrical Contractor's License (if applicable)
- Certificate of Workman's Compensation insurance (if applicable)
- Construction drawings of pool
- Specifications for: pool filter, heater, alarm, cover, suction fittings, etc.

PLOT PLAN REQUIREMENTS

Guide Lines

The following information must be incorporated into all plot drawings submitted for building/zoning permits:

1) **Determine the boundaries** of the subject property and represent said boundaries on the plot plan. A plot plan can be printed from the City of Meriden's Online Geographic Information Systems at http://gis.meridenct.gov/meriden/

2) **Draw the distance of the side and rear yard** to the proposed improvement.

    a. Such **POOL** shall be located in the side or rear yard **not less than five feet from any lot lines** and **not less than 10 feet** from the main building.

3) **Draw proposed improvement** and placement on the lot to scale in the side and rear yard. **The fencing protecting the POOL must be shown on the plot plan.**

4) **Represented all information provided on the plan in ink.**

5) Verify dimensions and **initial or sign plot plan** as to the accuracy of the information provided.

6) Contact the Health Department to verify if a septic tank, leaching fields, or other underground utility exists on the property.

Please utilize the preceding instruction to facilitate the processing of your application. **Lack of this necessary information could result in processing delays of your application for a permit.**

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POOL CHECKLIST

GENERAL

1. Obtain building and electrical permits.
2. Barrier (fence, pool, wall, etc.) shall be **not** less than 48" in height.
3. Openings shall not allow passage of a 4" sphere.
4. No indentations or protrusions should be present in solid barriers, other than construction tolerances and masonry joints.
5. Horizontal rails less than 45" apart on inside barrier; 1 3/4" vert. spacing.
6. Horizontal rails spaced 45" or more (vertical/picket spacing), openings shall not allow the passage of a 4" diameter sphere.
7. Maximum mesh size for chain link fences shall be 2 1/4" square.
8. Maximum diagonal openings (lattice, chain link w/slats etc.) 1 3/4".
9. Maximum opening in diagonal members (lattice fence) shall not be more than 1 3/4".

ACCESS GATES

1. Gate material shall comply w/#2 through #9 above.
2. Gates shall open outward, away from pool.
3. Gates shall be self-closing, self-latching, and equipped to accommodate a locking device.
4. Gate latches less than 54" above ground shall be **inside** the gate, at least 3" **below** the top of the gate, and gate material shall have openings 1/2" maximum within 18" of the latch.

ALARMS FOR DOORS DIRECTLY FROM HOUSE

1. Alarm shall be audible and distinct when door and/or screen are opened.
2. Alarm sounds continuously for minimum of 30 seconds within 7 seconds when the door and/or screen, if present, are opened.
3. Alarm shall automatically reset under all conditions.
4. Alarm override is allowed, in either direction, for up to 15 seconds maximum.
5. Touch pads or switches shall be located a minimum of 54" minimum above the threshold of the door.
6. Other means of protection shall be acceptable when approved by the Building Official.

DEFINITIONS

Swimming Pool –
Any structure intended for swimming or recreational bathing that contains water over **24** inches deep. This includes in-ground, above ground and on-ground swimming pools, hot tubs and spas.

Permanently Installed Swimming and Wading Pools –
Those that are constructed in the ground or partially in the ground, and all others capable of holding water with a depth greater than **42** inches, and all pools installed inside of a building, regardless of water depth, whether or not served by electrical circuits of any nature.

Storable swimming or wading pools –
Those that are constructed on or above the ground and are capable of holding water with a maximum depth of **42** inches, or a pool with non-metallic, molded polymeric walls or inflatable fabric walls regardless of dimension.

Pool cover, electrically operated –
Motor-driven equipment designed to cover and uncover the water surface of a pool by means of a flexible sheet or rigid frame.

STORABLE SWIMMING POOLS

Pumps.
A cord connected pool filter pump for use with storable pools shall incorporate an approved system of double insulation or its equivalent and shall be provided with means for grounding only the internal and non-accessible non-current-carrying metal parts of the appliance.

The means for grounding shall be an equipment grounding conductor run with the power supply conductors in a flexible cord of **any** length that is properly terminated in a grounding-type attachment plug having a fixed grounding contact.

Ground-fault circuit-interrupters required.
Electrical equipment, including power supply cords, used with storable pools shall be protected by ground-fault circuit-interrupters.

MISCELLANEOUS

EQUIPMENT, LOCATION AND CLEARANCES

Location –
Receptacles that provide power for water-pump motors or other loads directly related to the circulation and sanitation system shall be located between six(**6**) feet and ten(**10**) feet from the inside walls of pools, and, where so located, shall be single of the locking and grounding type and shall be protected by ground-fault circuit interrupters. Other receptacles on the property shall be located not less than six (**6**) feet from the inside walls of the pool.

Where Required –
At least one 125-volt 15- or 20-ampere receptacle supplied by a general purpose branch circuit shall be located a minimum of six (**6**) feet from and not more than twenty (**20**) feet from the inside wall of the pool. This receptacle shall be located not more than six (6) feet, six (6) inches above the floor, platform or grade level serving the pool.

GFCI protection –
All 125-volt receptacles located within twenty (**20**) feet of the inside walls of pools shall be protected by a ground-fault circuit interrupter. Outlets supplying pool pump motors from branch circuits with short-circuit and ground-fault protection rated 15 or 20 amperes, 125 volt or 240 volt, single phase, whether by receptacle or direct connection, shall be provided with GFCI protection for personnel.

Electric pool water heaters –
All electric pool water heaters shall have the heating elements subdivided into loads not exceeding 48 amperes and protected at not more than 60 amperes. The ampacity of the branch-circuit conducts and the rating or setting of overcurrent protective devices shall be not more than 125 percent of the total nameplate load rating.

On-Off switch –
All pool heaters shall be equipped with an ON-OFF switch to allow shutting off the operation of the heater without adjusting the thermostat setting and to allow restarting without relighting the pilot light.

Pool covers - Heated Pool -

Heated swimming pools shall be equipped with a pool cover.
EXCEPTION: Outdoor pools deriving more than 60 percent of the energy for heating from renewable sources (computed over an operating season) are exempt from this requirement.

Electrically operated pool covers –

The electric motors, controllers, and wiring for pool covers shall be located not less than 5 feet from the inside wall of the pool except where separated from the pool by a wall, cover or other permanent barrier. Electric motors installed below grade level shall be of the totally enclosed type. The electric motor and controller shall be connected to a circuit protected by a ground-fault circuit-interrupter. The device that controls the operation of the motor for an electrically operated pool cover shall be located so that the operator has full view of the pool.

Flexible Cords –

Flexible cords used in conjunction with a pool, spa, hot tub or hydro massage bathtub shall be installed in accordance with the following:

1. For other than underwater luminaries, fixed or stationary equipment, rated at 20 amperes or less shall be connected with a flexible cord to facilitate the removal or disconnection for maintenance or repair. For other than storable pools, the flexible cord shall not exceed three (3) feet in length, except spas and hot tubs, not longer than fifteen (15) feet where protected by ground fault circuit interrupter. Cords that supply swimming pool equipment shall have a copper equipment grounding conductor not smaller than 12 AWG and shall be provided with a grounding-type attachment plug.

2. Flexible cord that is supplied as part of a listed underwater swimming pool lighting luminaire shall be permitted to be installed in any of the permitted wiring methods from the luminaire to a deck box or other enclosure. Splices shall not be made within a raceway. The equipment grounding conductor shall be an insulated copper conductor that is not smaller than the supply conductors and not smaller than 16 AWG.

Outdoor wet locations –

Where installed outdoors in a wet location, 15- and 20-ampere, 125- and 250-volt receptacles shall have an enclosure that is weatherproof with the attachment plug cap inserted or removed.

PERMANENTLY INSTALLED SWIMMING POOLS, SPAS & HOT TUBS

ELECTRICAL

1. Receptacles shall be six (**6**) feet minimum from pool edge.
2. At least one 125v convenience GFCI receptacle between **6**' to **20**' from pool.
3. Convenience receptacle and pump cannot be on same circuit.
4. Time clock shall be installed so that pump can be set to run in the off peak demand period.
5. Receptacles associated with the circulation and sanitation system (pump motor, heater, etc) within six (**6**) and ten (**10**) feet from the pool edge shall be GFCI protected and grounding type. No receptacles are allowed within six (6) feet of the water.
6. Pump receptacle grounding conductor not less than #12AWG, **insulated**.
7. All 125v/15-20A receptacles outdoors to be GFCI protected.
8. Maximum pool equipment flexible cord length is three (**3**) feet except underwater lighting fixtures or storable pools.
9. Wiring method type/burial depths: **Trench inspection required.**
    - Rigid metal conduit RMC not less than 6"
    - Intermediate metal conduit IMC not less than 6"
    - Rigid non-metallic conduit RNC not less than **12**"
    - Pool wiring using MC cable (with **insulated** equipment ground) is only allowed in sizes #12 and larger inside single family homes. The wiring method must be changed to conduit outside the house.
10. Bonding required; #8 AWG solid copper bonding conductor or larger, for the following:
    - Structural reinforcing (rebar) of concrete pool
    - Walls of bolted or welded metal pools
    - All metallic parts of pool structure
    - All fixed metal parts within 5' horizontally from pool edge
    - All pump motors, filter casings and other metal electrical equipment associated with the pool.
    - **Trench inspection, with conduit installed, is required prior to backfill.**

ELECTRICAL BONDING

E4204.2 Bonded parts. The parts of pools, spas, and hot tubs specified in Items 1 through 7 shall be bonded together using insulated, covered or bare solid copper conductors not smaller than 8 AWG or using rigid metal conduit of brass or other identified corrosion-resistant metal. An 8 AWG or larger solid copper bonding conductor provided to reduce voltage gradients in the pool, spa, or hot tub area shall not be required to be extended or attached to remote panelboards, service equipment, or electrodes. Connections shall be made by exothermic welding or by listed pressure connectors or clamps that are labeled as being suitable for the purpose and that are made of stainless steel, brass, copper or copper alloy. Connection devices or fittings that depend solely on solder shall not be used. Sheet metal screws shall **not** be used to connect bonding conductors or connection devices:

2. **Perimeter surfaces.** The perimeter surface shall extend for **3** feet (914 mm) horizontally beyond the inside walls of the pool and shall include unpaved surfaces, poured concrete and other types of paving. Bonding to perimeter surfaces shall be provided as specified in Item 2.1 or 2.2 and shall be attached to the pool, spa, or hot tub reinforcing steel or copper conductor grid at a minimum of **four** points uniformly spaced around the perimeter of the pool, spa, or hot tub. For nonconductive pool shells, bonding at four points shall not be required.

2.2 Alternate Means. Where structural reinforcing steel is not available or is encapsulated in a nonconductive compound, a copper conductor(s) shall be used in accordance with Items 2.2.1 through 2.2.5:

2.2.1 At least one minimum **8** AWG bare solid copper conductor shall be provided.

2.2.2 The conductors shall follow the contour of the perimeter surface.

2.2.3 Splices shall be listed.

2.2.4 The required conductor shall be **18** to **24** inches (457 to 610 mm) from the inside walls of the pool.

2.2.5 The required conductor shall be secured within or under the perimeter surface **4** to **6** inches (102 mm to 152 mm) below the subgrade.

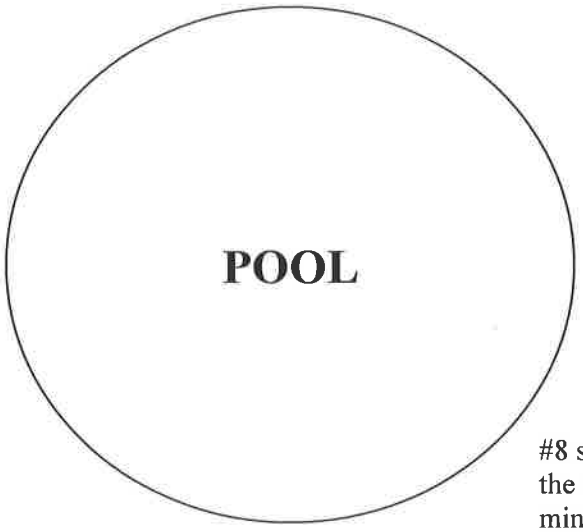
E4204.3 Pool Water. The pool water shall be intentionally bonded by means of a conductive surface area not less than **9** square inches (5806 mm^2) installed in contact with the pool water.

SWIMMING POOLS MUST BE A MINIMUM OF 10 FEET FROM THE HOUSE

AND 5 FEET FROM THE REAR AND SIDE PROPERTY LINES

(THESE REQUIREMENTS DO NOT APPLY TO CORNER LOTS)

Pool must be **4 feet high** around the entire circumference, or enclosed by a 4 foot fence.



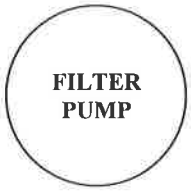
Outlet must be a minimum of **6 feet** from the pool.

#8 solid bond wire attached to the metal pool frame at a minimum of 4-points uniformly spaced and terminated at the pump. **APPROVED LUGS &**

Receptacle Must be GFCI protected.

3 feet max.

#12 Cord



Must conform to 2015 IRC

#12 wiring to **panel** with **insulated** #12 ground in conduit. Pool pump motor **must** be time clock controlled.

Additional ground fault protected outlet **is required 6** to **20** feet from the pool and must be separate from the pool pump circuit.

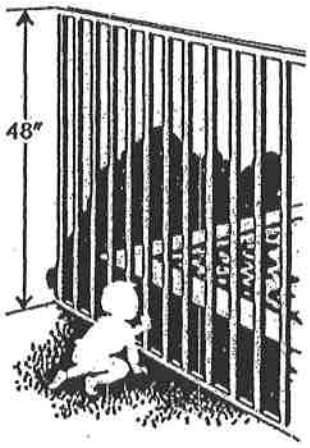
The Swimming Pool Barrier Guidelines

A successful pool barrier prevents a child from getting OVER, UNDER, or THROUGH and keeps the child from gaining access to the pool except when supervising adults are present.

How to Prevent a Child from Getting OVER a Pool Barrier

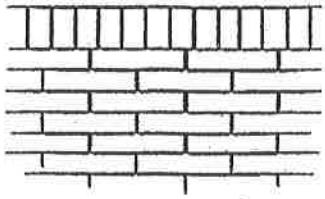
A young child can get over a pool barrier if the barrier is too low or if the barrier has handholds or footholds for a child to use when climbing.

The guidelines recommend that the top of a pool barrier be at least 48 inches above grade, measured on the side of the barrier which faces away from the swimming pool.

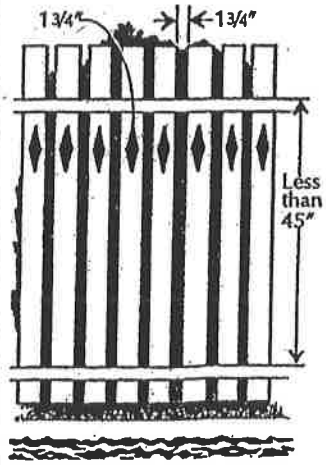


Guidelines recommend eliminating handholds and footholds and minimizing the size of openings in a barrier's construction.

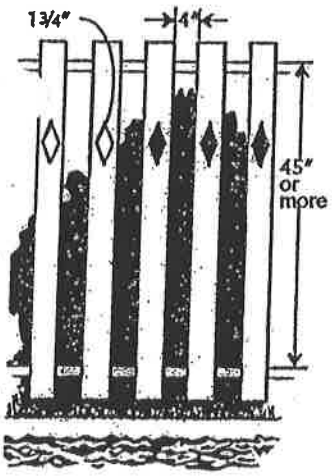
For a Solid Barrier:
No indentations or protrusions should be present, other than normal construction tolerances and masonry joints.



For a Barrier (Fence) Made Up of Horizontal and Vertical Members:
If the distance between the tops of the horizontal members is less than 45 inches, the horizontal members should be on the swimming pool side of the fence. The spacing of the vertical members should not exceed 1-3/4 inches. This size is based on the foot width of a young child and is intended to reduce the potential for a child to gain a foothold. If there are any decorative cutouts in the fence, the space within the cutouts should not exceed 1-3/4 inches.

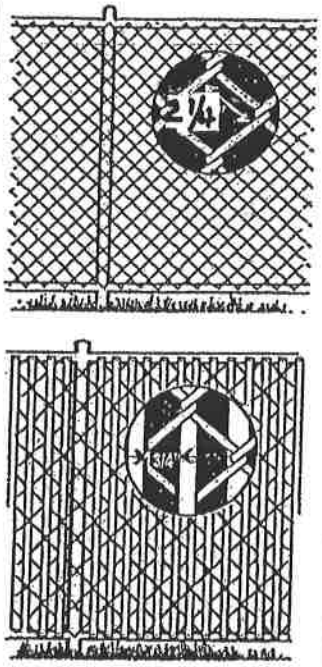


If the distance between the tops of the horizontal members is more than 45 inches, the horizontal members can be on the side of the fence facing away from the pool. The spacing between vertical members should not exceed 4 inches. This size is based on the head breadth and chest depth of a young child and is intended to prevent a child from passing through an opening. Again, if there are any decorative cutouts in the fence, the space within the cutouts should not exceed 1-3/4 inches.



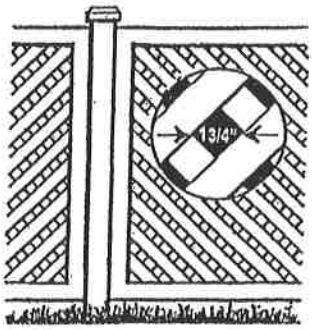
For a Chain Link Fence:

The mesh size should not exceed 2 1/4 inches square unless slats, fastened at the top or bottom of the fence, are used to reduce mesh openings to no more than 1-3/4 inches.

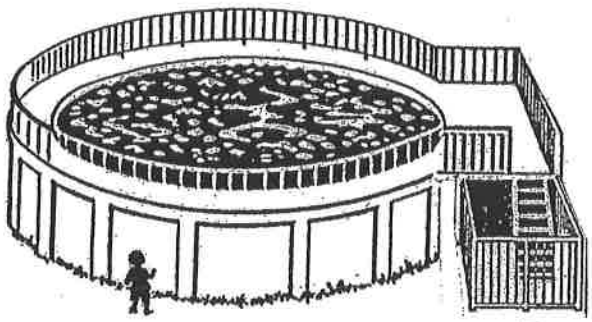


For a Fence Made Up of Diagonal Members (Latticework):

The maximum opening in the lattice should not exceed 1-3/4 inches.



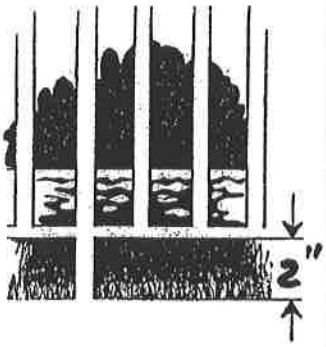
For Aboveground Pools:



Aboveground pools should have barriers. The pool structure itself serves as a barrier or a barrier is mounted on top of the pool structure.

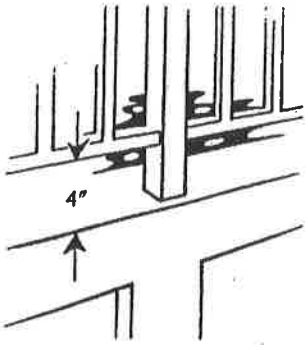
How to Prevent a Child from Getting UNDER a Pool Barrier

For any pool barrier, the maximum clearance at the bottom of the barrier should not exceed **2** inches above grade, when the measurement is done on the side of the barrier facing away from the pool.



Aboveground Pool with Barrier on Top of Pool:

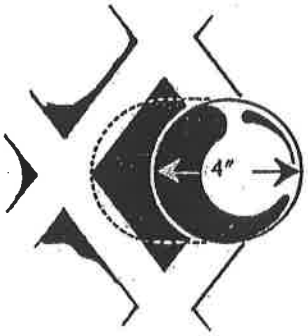
If an aboveground pool has a barrier on the top of the pool, the maximum vertical clearance between the top of the pool and the bottom of the barrier should not exceed 4 inches.



How to Prevent a Child from Getting THROUGH a Pool Barrier

Preventing a child from getting through a pool barrier can be done by restricting the sizes of openings in a barrier and by using self-closing and self-latching gates.

To prevent a young child from getting through a fence or other barrier, all openings should be small enough so that a 4-inch diameter sphere cannot pass through. This size is based on the head breadth and chest depth of a young child.

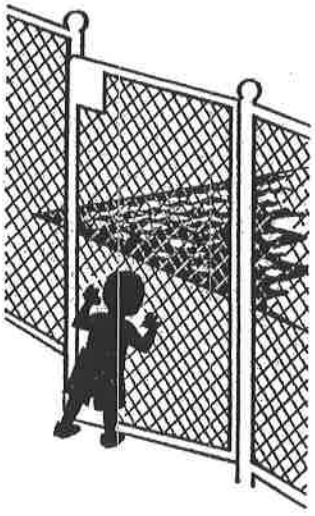


Gates:

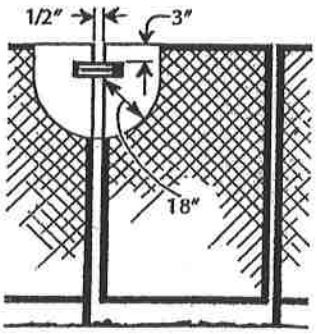
There are two kinds of gates which might be found on a residential property. Both can play a part in the design of a swimming pool barrier.

Pedestrian Gates:

These are the gates people walk through. Swimming pool barriers should be equipped with a gate or gates which restrict access to the pool. A locking device should be included in the gate design. Gates should open out from the pool and should be self-closing and self-latching. If a gate is properly designed, even if the gate is not completely latched, a young child pushing on the gate in order to enter the pool area will at least close the gate and may actually engage the latch.



When the release mechanism of the self-latching device is less than 54 inches from the bottom of the gate, the release mechanism for the gate should be at least 3 inches below the top of the gate on the side facing the pool. Placing the release mechanism at this height prevents a young child from reaching over the top of a gate and releasing the latch.

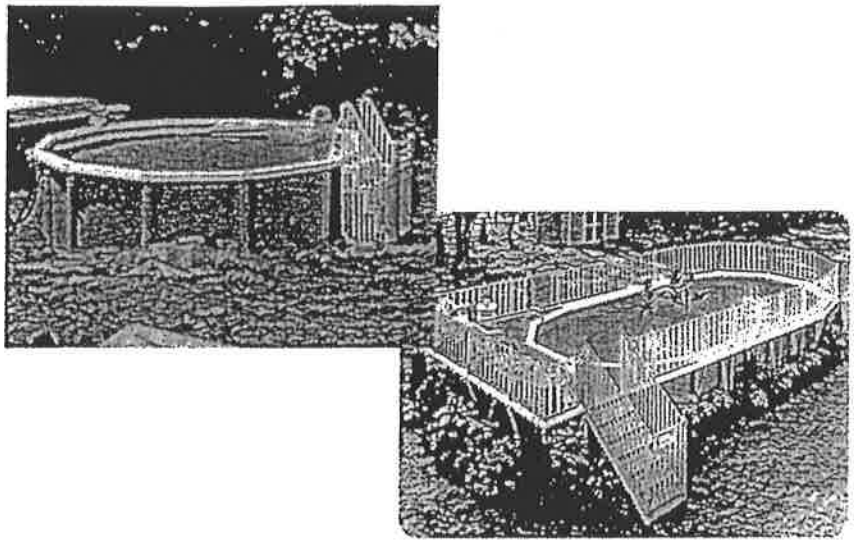


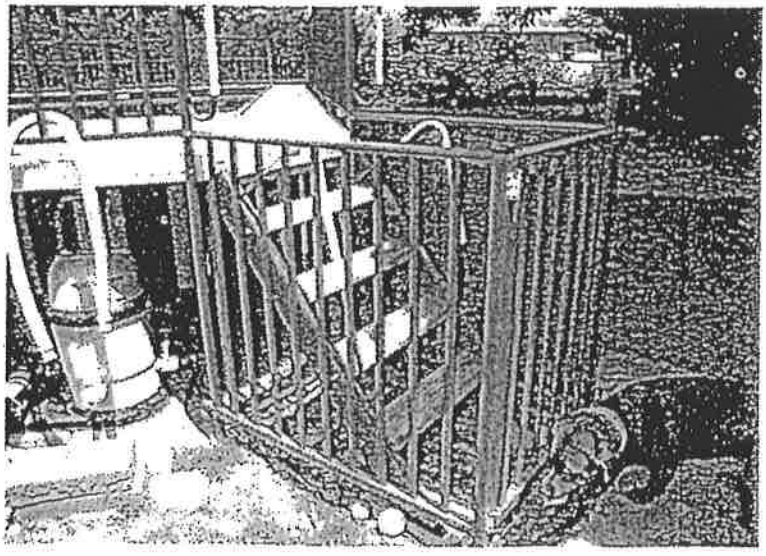
Also, the gate and barrier should have no opening greater than 1/2 inch within 18 inches of the latch release mechanism. This prevents a young child from reaching through the gate and releasing the latch.

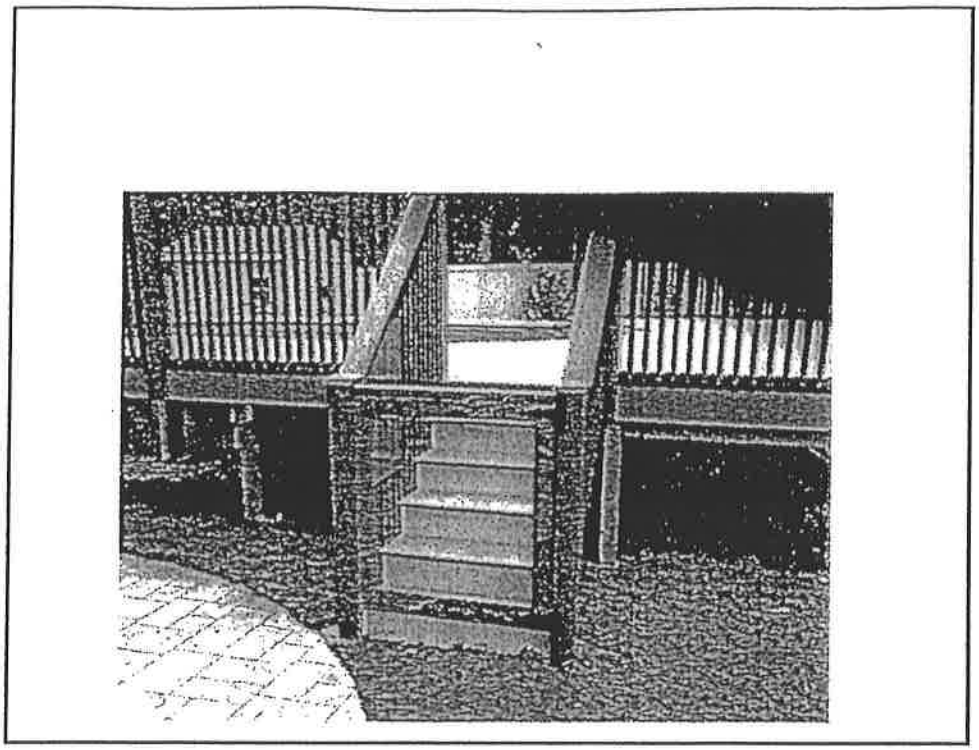
All Other Gates (Vehicle Entrances, Etc.):

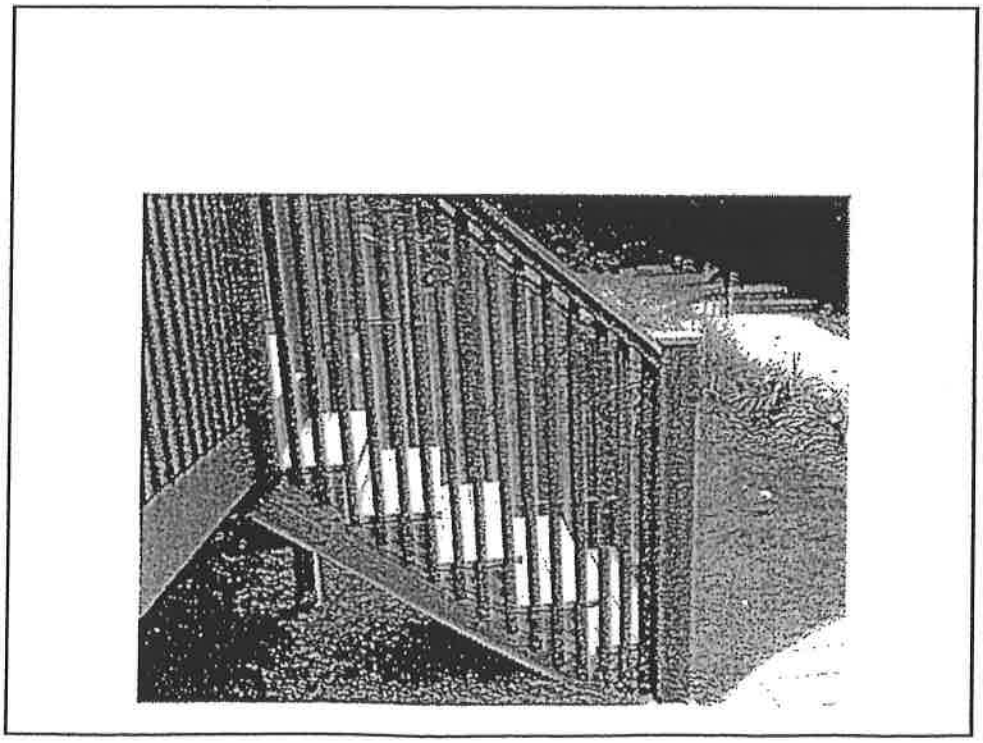
Other gates should be equipped with self-latching devices. The self-latching devices should be installed as described for pedestrian gates.

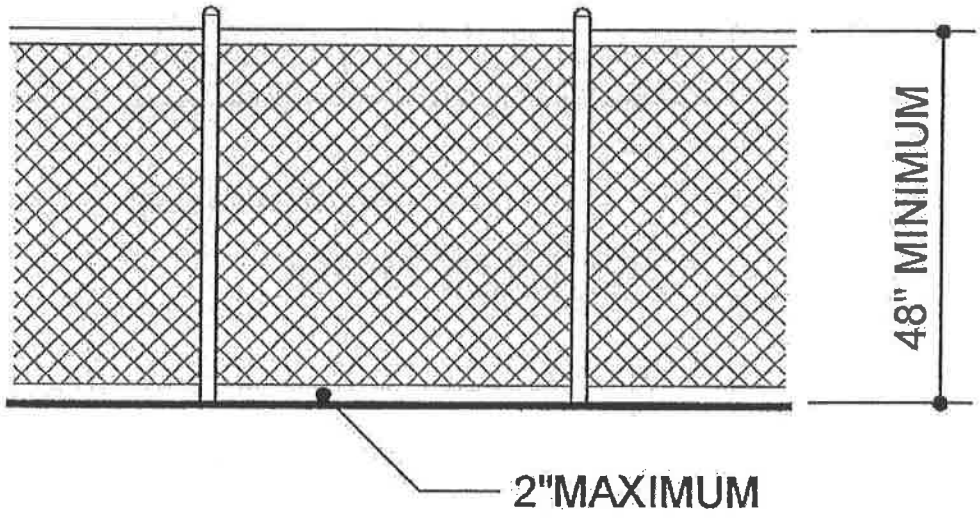
Barrier Requirements







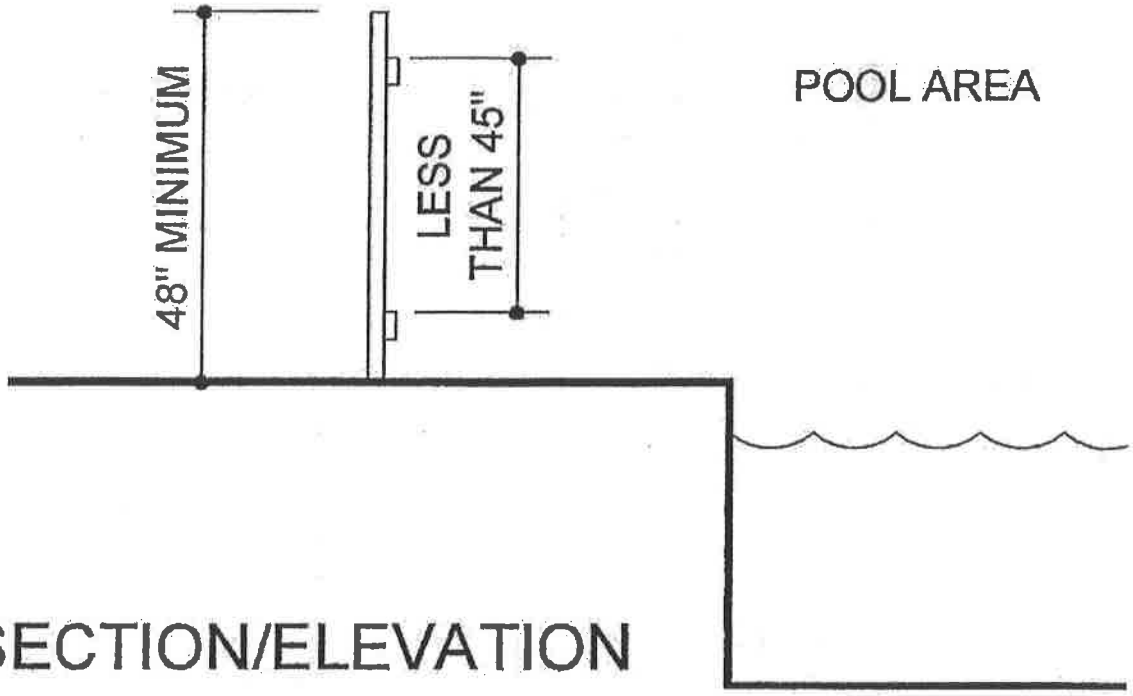




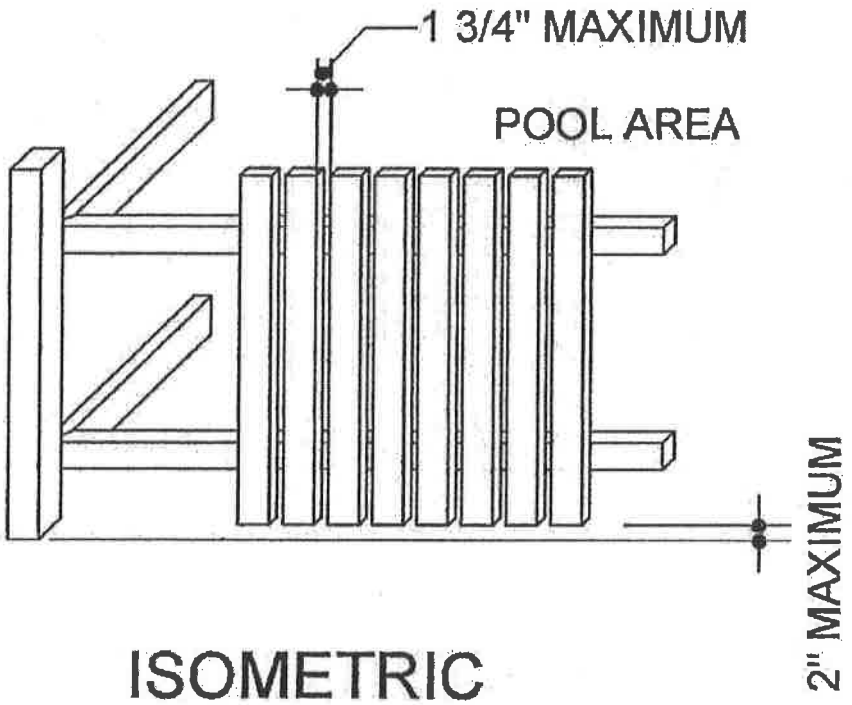
ELEVATION

OUTSIDE OF THE POOL ENCLOSURE

SECTION AG105.2, ITEM 1

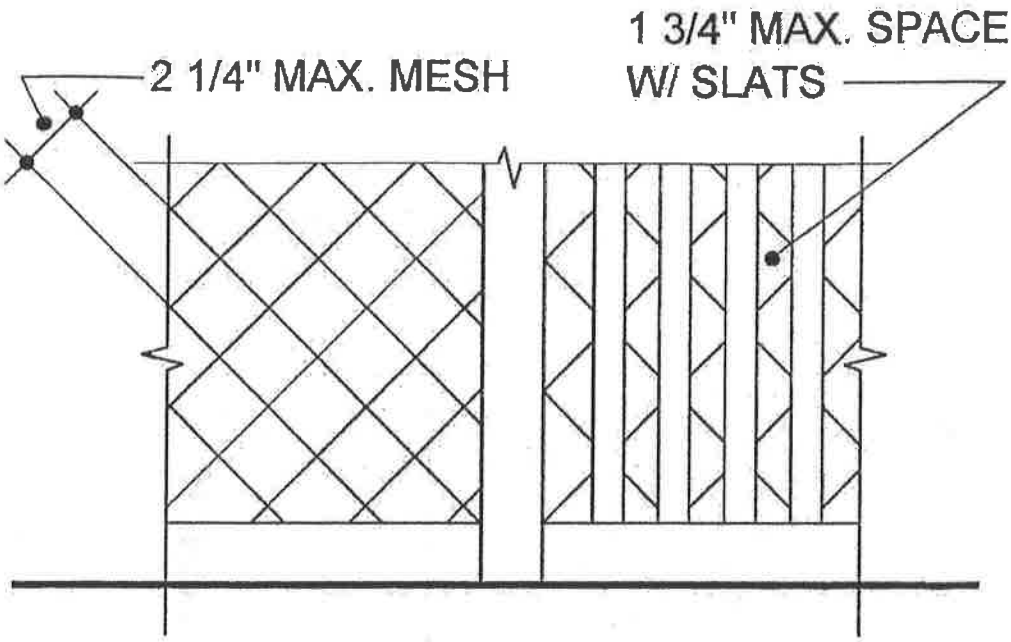


SECTION/ELEVATION



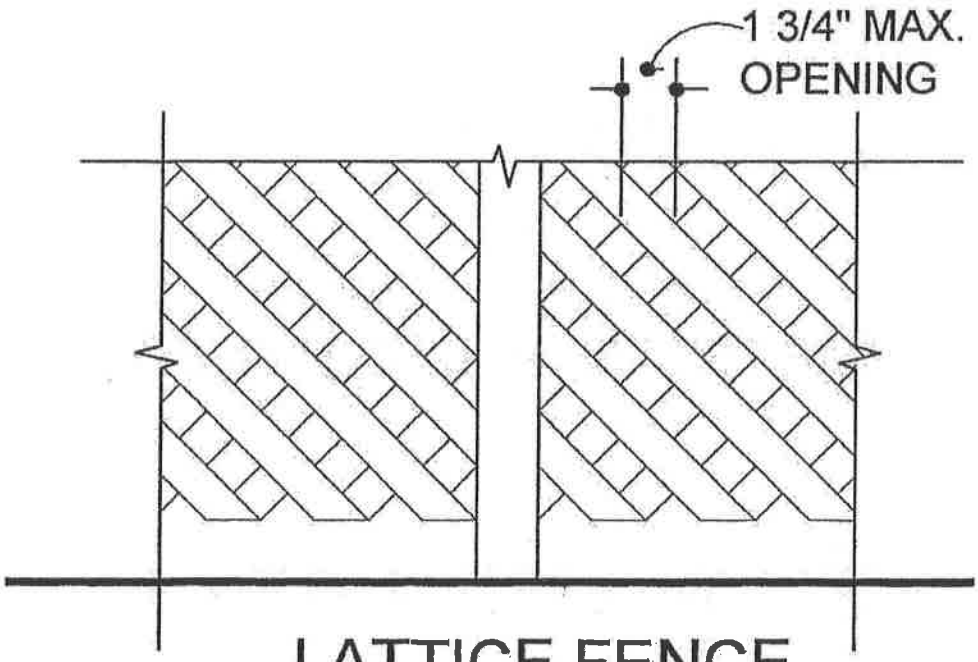
ISOMETRIC

SECTION AG105.2, ITEM 4



CHAIN LINK FENCE

SECTION AG105.2, ITEM 6



LATTICE FENCE

SECTION AG105.2, ITEM 7

CONCERNING ALARMS FOR SWIMMING POOLS

CONNECTICUT GENERAL STATUTE 29.265a as referenced in CONNECTICUT STATE BUILDING CODE

(a) As used in this section, "pool alarm" means a device which emits a sound of at least fifty decibels when a person or an object weighing fifteen pounds or more enters the water in a swimming pool.

(b) No building permit shall be issued for the construction or substantial alteration of a swimming pool at a residence occupied by, or being built for, one or more families unless a pool alarm is installed with the swimming pool.

Date:_____

As owner of property located at _____, I agree to purchase and install a swimming pool alarm in compliance with Public Act 99-140.

Property Owners Signature:_____

Property Owners Name Printed:_____

1 & 2 FAMILY BUILDING PERMIT APPLICATION

CITY OF MERIDEN
BUILDING DEPARTMENT
142 EAST MAIN STREET
MERIDEN, CT 06450

PHONE: (203) 630-4091
FAX: (203) 630-4093

ADDRESS OF PROJECT: ______________________________

OWNER OF PROPERTY: ____________________ PHONE: ______________

OWNERS ADDRESS: ______________________________

CONTRACTORS NAME: ____________________ PHONE: ______________

CONTRACTORS ADDRESS: ______________________________

CONTRACTORS LICENSE NUMBER: ______________ EST COST: ______________

APPLICIANTS EMAIL: ______________________________

DESCRIPTION OF WORK: ______________________________

____

NUMBER OF DWELLING UNIT: (1) ____ (2) _____

CITY WATER: _______ CITY SEWER: ______ WELL: _______ SEPTIC: ________

I hereby certify that the owner of record authorizes the proposed work, I have been authorized by the owner of record to make this application as an authorized agent, and we agree to conform to all the requirements of the laws and codes of the State of Connecticut.

APPLICANT NAME: ____________________ SIGN: ____________________ DATE: __________

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

FOR OFFICE USE ONLY BELOW THIS LINE

A. SF: ______________ X.42: $______________ (NEW UNFINISHED SPACE)
B. SF: ______________ X.42: $ ______________ (NEW UNFINISHED SPACE)
C. SF: ______________ X.85: $ ______________ (NEW FINISHED SPACE)
D. SF: ______________ X.85: $ ______________ (NEW FINISHED SPACE)

E. PERMIT FEE: ______________________________
F. STATE EDUCATION FEE: .26 per thousand: $ ______________
G. CO Fee: **$50.00 (IF APPLICABLE) YES NO**
H. TOTAL PERMIT FEE DUE: $______________________

REVIEWERS APPROVALS:
BUILDING APPROVAL: ______________ DATE: ______________
ZONING APPROVAL: ______________ DATE: ______________
TAX COLLECTOR: ______________ DATE: ______________

***** NO REFUNDS ON PERMIT FEES*****

ELECTRICAL PERMIT APPLICATION

CITY OF MERIDEN
BUILDING DEPARTMENT
142 EAST MAIN STREET
MERIDEN, CT 06450

PHONE: (203) 630-4091
FAX: (203) 630-4093

ADDRESS OF PROJECT: Lot#_____ St# _____ Street: _____

OWNER OF PROPERTY: _____ PHONE: _____

OWNERS ADDRESS: _____

CONTRACTORS NAME: _____ PHONE: _____

CONTRACTORS ADDRESS: _____

CONTRACTORS LICENSE #: _____ESTIMATED COST:_____

APPLICANTS EMAIL: _____

DESCRIPTION OF WORK: _____

_____

_____

//

TYPE OF SERVICE: _____new_____ existing _____change _____ temporary _____ overhead
_____ Underground _____phase _____ wire _____ voltage _____ conduit size_____ #meter required
_____ # of dwellings _____ # of stories, _____ # Amps ***CRS #*** _____ ***REQUIRED.***
PRIMARY HEAT SOURCE: IF ELECTRIC "PROVIDE LOAD CALUCATIONS" Yes___ No___
Electric ___ Total Wattage _____ Gas _____ Oil _____ Solar _____ Other _____
Heat loss calculations: Attached _____ as per plans _____ other _____
Swimming pool: Above ground _____ in ground _____ Heated _____ Unheated _____

Check occupancy that applies: 1 family home: ___ 2 family home: ___ 3 or more family ____
Industrial: _____ other type (please indicate): _____
*** Fire Marshal may be required for 3 families and up. ****

I hereby certify that the proposed work is authorized by the owner of record and I have been authorized by the owner of record to make this application as an authorized agent and we agree to conform to all the requirements of the laws and codes of the State of Connecticut.

APPLICANT: _____ SIGN: _____ DATE: _____

E. PERMIT FEE: _____
F. STATE EDUCATION FEE: .26 per thousand: $ _____
G. TOTAL PERMIT FEE DUE: $_____
REVIEWERS APPROVALS:
BUILDING APPROVAL: _____ DATE: _____
ZONING APPROVAL: _____ DATE: _____
TAX COLLECTOR: _____ DATE: _____
FIRE MARSHAL: _____ DATE: _____

***** NO REFUNDS ON PERMIT FEES*****